# Mechanisms Underlying the City Size Wage Premium

Tyler Ransom

Department of Economics, Duke University

## Introduction

- **Agglomeration economies**: efficiency gains from density of economic activity
- These gains impact both firms and workers
- Literature has identified that **workers in larger cities earn higher wages**
- My research seeks to improve the understanding for why this occurs

## Research Question

- **Quantify competing explanations for city size wage premium:**

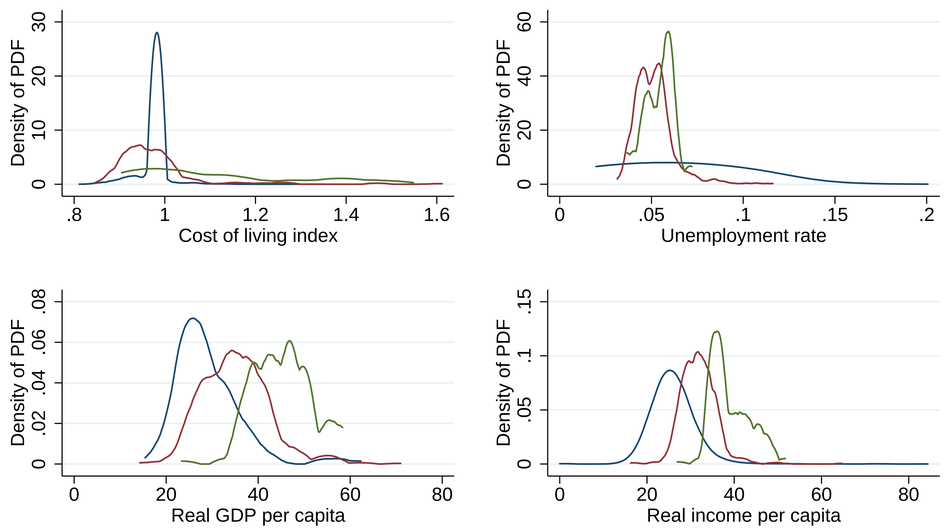
1. Sorting on observed and unobserved skill
2. Compensating differentials for locational amenities
3. True productivity premium arising from local productivity differences

## Data

- **2004 Survey of Income and Program Participation (SIPP)**
- Individual-level data including:
  - monthly earnings
  - monthly labor force status
  - migration history
- **Estimation subsample:**
  - Non-Hispanic white males aged 18-60 who have completed highest level of schooling
  - $N = 24,261$
- **Locational characteristics:**
  - population (2000 Census)
  - prices (ACCRA)
  - productivity (BEA)
  - labor statistics (BLS-LAUS)

## Motivating evidence: characteristics by city size category

Distributions of city characteristics by city size




Data sources: ACCRA, BLS−LAUS, BEA

## Results: log wage regressions

| | *Temporally deflated wages only: (Worker productivity)* | | | *Spatially and temporally deflated wages: (Worker productivity less amenities)* | | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| medium city | 0.1829*** | 0.1003*** | -0.0292*** | 0.1637*** | 0.0851*** | -0.0315*** |
| | (0.0025) | (0.0022) | (0.0111) | (0.0025) | (0.0022) | (0.0112) |
| large city | 0.3773*** | 0.2370*** | 0.0135 | 0.2182*** | 0.0857*** | -0.1234*** |
| | (0.0026) | (0.0023) | (0.0127) | (0.0026) | (0.0023) | (0.0129) |
| age | | 0.0448*** | 0.0112* | | 0.0391*** | 0.0051 |
| | | (0.0012) | (0.0061) | | (0.0012) | (0.0061) |
| experience | | 0.0092*** | 0.0454*** | | 0.0128*** | 0.0512*** |
| | | (0.0006) | (0.0042) | | (0.0007) | (0.0042) |
| tenure | | 0.0223*** | 0.0026*** | | 0.0222*** | 0.0022*** |
| | | (0.0003) | (0.0008) | | (0.0003) | (0.0008) |
| years of education | | 0.0877*** | | | 0.0853*** | |
| | | (0.0005) | | | (0.0005) | |
| industry/occupation dummies | | ✓ | ✓ | | ✓ | ✓ |
| individual fixed effects | | | ✓ | | | ✓ |
| person-months | 398,447 | 398,447 | 398,447 | 398,447 | 398,447 | 398,447 |
| persons | 16,070 | 16,070 | 16,070 | 16,070 | 16,070 | 16,070 |
| R-squared | 0.050 | 0.323 | 0.756 | 0.018 | 0.291 | 0.745 |

Dependent variable is log wage. Robust standard errors in parentheses. Regressions also include an intercept and quadratic terms for age, experience, and tenure. *** p<0.01; ** p<0.05; * p<0.10

## Research method

- Dynamic search model
- Individuals choose location and labor force status that will maximize present value of expected utility
- Wage enters utility if employed
- Location amenities enter utility regardless of job search outcome

## Preliminary results

- Large amount of sorting on observable characteristics: (2) vs. (1)
- Even larger amount of sorting on unobservables: (3) vs. (1)
- Evidence of preferences for amenities: (4)-(6) vs. (1)-(3)
- Need to carefully control for effects of selection and preferences on wage estimates to properly interpret results

## Conclusion

- There is a sizable, monotonic city size wage premium that persists even after controlling for cost of living and a variety of human capital and local productivity measures
- The structural model appropriately treats selection of skilled workers into cities
- Simulations of the model will reveal the relative importance of each of the sources contributing to the wage premium

## Acknowledgments

**Thanks to:**

- Peter Arcidiacono and seminar participants at Duke University and Georgia State University for helpful comments; funding from NSF Grant SES-11-31897

**Disclaimer:**

- Any opinions and conclusions expressed herein are my own and do not necessarily represent the views of the U.S. Census Bureau
- All results have been reviewed to ensure that no confidential information is disclosed.

https://tyleransom.github.io ransom@ou.edu